

Operation of Silicon Detector Dry Gas Purge System

Revision Log

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Approvals

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1 INTRODUCTION

1.1 Purpose

This procedure provides instructions for the normal operation of the silicon detector dry gas purge system.

1.2 Scope

This procedure addresses the actions necessary for compressor switchover, valving in the backup air dryer, and restoring the primary air dryer to service.

It does not address preventive maintenance activities, nor does it address the repair or replacement of the air dryer system or any of its components.

1.3 Applicability

This procedure applies only to the DØ silicon detector purge air system.

2 PRECAUTIONS AND LIMITATIONS

None

3 PREREQUISITE ACTIONS

None

4 PROCEDURE

4.1 Compressor Switchover

[1] Disable the following instrument air related alarms on DMACs:

[a] Compressor flow FS-6205-I

[b] East and West compressor operation status

[2] Locally shut down the running compressor by pushing 'Unloaded Stop' button on control pad.

4.1 Compressor Switchover (continued)

- [3] Switch glycol cooling flow to the compressor coming on-line by fully turning (either open or closed) MV6170-GL and MV-6180-GL on the glycol supply lines to the compressors.
- [4] Toggle the electrical selector switch mounted between the compressors to the compressor you intend to run.
- [5] Isolate the air supply from the compressor going off-line and open the air supply to compressor coming on-line. This is done by fully turning (either open or closed) MV-6011-I and MV-6031-I.
- [6] Following the manufacturer's instructions on the compressor control unit, start the compressor unloaded and run for one (1) minute.
- [7] Load the compressor.
- [8] Choose 'modulate' mode.
- [9] Enable the following instrument air related alarms on DMACs:
 - [a] Compressor flow FS-6205-I
 - [b] East and West compressor operation status

4.2 Valving in Backup Air Dryer to Silicon Purge Air System

- [1] Open MV-6251-I and MV-6282-I.
- [2] Flip on the power switch to the backup air dryer, located on the wall behind the unit.
- [3] Close MV-6211-I.
- [4] Watch the supply dew points on HT-6227-I for proper suppression.

NOTE: *Dew point temperature nominally will be -70°F but may go as high as -30°F without risk of tripping interlock protection to silicon detector.*

- [5] Bypass and isolate primary dryer in room 604 by doing the following:
 - [a] Open MV-6057-I
 - [b] Close MV-6058-I
 - [c] Close MV-6086-I

4.3 Returning to Operation of Primary Dryer

- [1] Open MV-6058-I and MV-6086-I.
- [2] Close MV-6057-I.
- [3] Restore power to primary dryer.
- [4] Leave backup dryer on-line and operating for 24 hours to pickup any water vapor that may have collected in the piping between dryers.
- [5] Open MV-6211-I.
- [6] Shut off power to backup air dryer.
- [7] Close MV-6251-I and MV-6282-I.
- [8] Watch supply dew points on HT-6227-I for proper suppression.

NOTE: *Dew point temperature nominally will be $-70^{\circ}F$ but may go as high as $-30^{\circ}F$ without risk of tripping interlock protection to silicon detector.*

5 REFERENCES

- A. "Overview of the D-Zero Silicon Detector Purge Air System", DØ Engineering Note 3823.112-EN-539, December 12, 2000.
- B. "Dry Purge Gas System Instrument Air Compressor Flow Diagram", Dwg # 3823.124-ME-386201, Sheets 1 and 2.
- C. Dry gas piping components - Excel spreadsheet